CHEMISTRY

1. Which of the following sequences is correct for decreasing order of ionic radius ?

(A) $Se^{2-} > I^- > Br^- > O^{2-} > F^-$

(B) $I^- > Se^{2-} > O^{2-} > Br^- > F^-$

(C) $Se^{2-} > I^- > Br^- > F^- > O^{2-}$

(D) $I^- > Se^{2-} > Br^- > O^{2-} > F^-$

2. Acidity of diprotic acids in aqueous solutions increases in the order

(A) $H_2S < H_2Se < H_2Te$

(B) $H_2Se < H_2S < H_2Te$

(C) $H_2Te < H_2S < H_2Se$

(D) $H_2Se < H_2Te < H_2S$

3. S-S linkage absent in

(A) $H_2S_2O_7$

(B) $H_2S_2O_3$

(C) $H_2S_2O_5$

(D) $H_2S_2O_6$

4. Which of the following has an inverse spinel structure ?

(A) $MgAl_2O_4$

(B) Mn_3O_4

(C) Co_3O_4

(D) Fe_4O_4

5. $Co_4(CO)_{12}$ adopts the

(A) *closo*- structure

(B) *nido*- structure

(C) *arachno*- structure

(D) *hypo*- structure

6. The correct electronic configuration and spin-only magnetic moment of Gd^{3+} (at no. 64) are

(A) $[Xe]4f^7$ and 7.9 BM

(B) $[Xe]4f^7$ and 8.9 BM

(C) $[Xe]4f^6\,5d^1$ and 7.9 BM

(D) $[Rn]5f^7$ and 7.9 BM

7. Which of the following configuration will show large Jahn-Teller distortion ?

(A) d^5, high-spin

(B) d^3

(C) d^9

(D) d^{10}

8. Free ion ground term for the ion Mn^{2+} is

(A) $^6S_{5/2}$

(B) $^{5/2}S$

(C) $^6S_{3/2}$

(D) ^6S